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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification: G06F 17/30, G06F 159:00	A1	(11) International Publication Number:	WO 00/29983
		(43) International Publication Date:	25 May 2000 (25.05.2000)

(21) International Application Number: PCT/US99/26141

(22) International Filing Date: 04 November 1999 (04.11.1999)

(30) Priority Data:
09/191,648 13 November 1998 (13.11.1998) US

(60) Parent Application or Grant
KRIESE, George, Edward, Jr. [/]; O. KRIESE, George, Edward, Jr. [/]; O. GIRARD, Philip, A. ; O.

Published

(54) Title: SYSTEM AND METHOD OF STORING MEDICAL RECORDS AND PROVIDING INFORMATION BASED UPON A USER'S MEDICAL RECORDS

(54) Titre: SYSTEME ET PROCEDE D'ENREGISTREMENT DE DOSSIERS MEDICAUX ET DE GENERATION D'INFORMATIONS SUR LA BASE DES DOSSIERS MEDICAUX D'UTILISATEURS

(57) Abstract

A system and method for providing for efficient storage and organization of individual users specific medical history records (60). It also provides for storage of information packages derived from medical service providers, medical product providers and other sources of medical information such as news organizations. It can then analyze the individual user medical record information (62) and determine if any of the information packages correspond to the individuals medical histories (62). If such a correspondence is identified, then the appropriate corresponding information packages can be transmitted to the individual user (64). It can also receive queries from medical researchers who are interested in obtaining data and analysis based on the individual medical records stored in the system (66). If further allows for providing customized searches of the Internet based on the users medical records as reflected in the system database (74, 76).

(57) Abrégé

L'invention porte sur un système et sur un procédé permettant un stockage et une organisation efficaces de dossiers (60) spécifiques, individuels, d'antécédents médicaux d'utilisateurs. Ce système permet de stocker des paquets d'informations dérivés de fournisseurs de services médicaux, de fournisseurs de produits médicaux et d'autres sources d'informations médicales telles que de nouvelles organisations. Ce système peut ensuite analyser les informations (62) des dossiers médicaux d'utilisateurs individuels et déterminer si certains des paquets d'informations correspondent aux antécédents (62) médicaux des individus. Si une telle correspondance est identifiée, les paquets d'informations correspondants appropriés peuvent être ensuite transmis à l'utilisateur (64) individuel. Ce système peut également recevoir des consultations provenant de recherchistes médicaux désirant obtenir des données et faire une analyse à partir des dossiers médicaux individuels enregistrés dans le système (66). Il permet également d'effectuer des recherches personnalisées sur Internet à partir de ces dossiers médicaux d'utilisateurs apparaissant dans la base de données (74, 76) du système.

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(22) International Filing Date: 4 November 1999 (04.11.99)

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09/191,648 13 November 1998 (13.11.98) US

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(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

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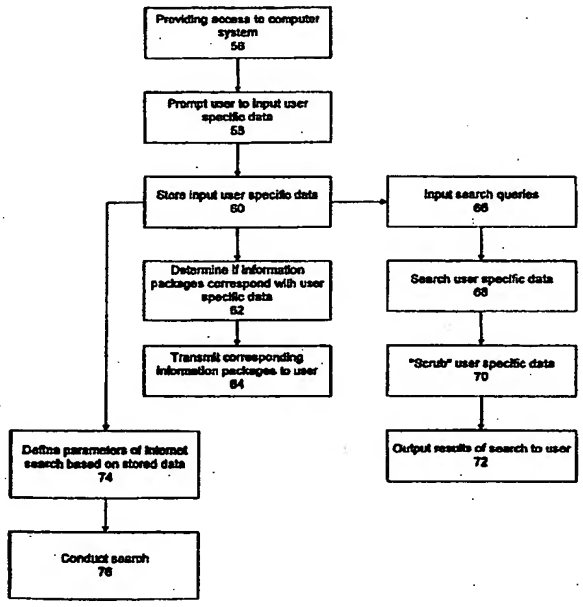

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Description

SYSTEM AND METHOD OF STORING MEDICAL RECORDS AND PROVIDING INFORMATION BASED UPON A USER'S MEDICAL RECORDS

I. Background

It is widely recognized that there are a number of limitations with present systems and methods for organizing, storing and providing access to medical records. Furthermore, present systems and methods do not facilitate outcome based research. In present systems most individual medical histories are collections of separate files located across a number of doctor, clinic and hospital files. Problems arise when individual consumer patients move from one medical plan to another, require emergency treatment or any other time individuals require timely access to their complete medical records. Another limitation with the present systems and methods for storing and maintaining medical records is that the information is not organized or structured such that it can be used to optimally identify those individuals who might be interested in particular health care products or services. Furthermore, because of the way medical record data is presently organized and structured it is difficult to efficiently conduct outcome based research.

II. SUMMARY OF INVENTION

The system and method herein was invented to provide a secure, centralized, on-line repository for the maintenance of medical records, as well as a reference facility for medical advice and advisory materials on a wide variety of health conditions. The invention integrates search engine capabilities and provides for individual user profile driven searches of the Internet for the latest information as it pertains to specific users precise health profile. The invention also incorporates data warehousing technology to provide health care providers, drug and device companies with patient-centered statistical information for advanced medical research, and targets advertising messages for health care goods and services to those individuals whose profiles indicate a possible interest.

The system of the invention meets the needs of consumers and advertisers and addresses the needs of providers of managed health care services, drug and device companies for relevant "patient-centered" outcome information. Population statistics are accessible through the system's data warehousing technology for retrospective outcomes analysis and resource utilization studies. The system and method provide a number of possible avenues for generating revenue including: the sale of precisely targeted product advertising messages to individual users of the system; transaction based services for providers and payers of health care services; selling patient population data sets for retrospective outcomes analysis.

The system and method allow individuals to collect, understand and control their personal medical history information. The system and method provide individuals with free, secure, password protected database accounts and allows individuals to construct, maintain and have 24-hour emergency access to their medical records from anywhere in the world.

The system and method incorporate and utilize the Internet through a world wide web server, and is accessible directly from the Internet using any browser software, or through on-line services including CompuServe, America Online and Microsoft Network and through destination sites like Yahoo. The system offers individuals a way to collect and control their own health care information, and provides for the collection of patient centered data required by the health care industry to have statistically relevant sample sizes for doing retrospective studies of health care outcomes and resource utilization.

One embodiment of the invention provides individuals with a password protected system, which provides access to a database where they can record and store their medical history. In case of an emergency, medical personnel are able to access an individual's medical information 24 hours a day, from anywhere in the world using the information provided on a patient's identification card or wrist bracelet. Individuals who use the system are provided with targeted information regarding health care products and services. The information provided to the individual users of the system corresponds to the specific medical history, according to each individuals unique medical profile. In addition, the system provides an option which allows the user to conduct searches of the Internet which are tailored to their specific medical history as reflected in the system database. This system also contains information

packages, such as advertisements or articles from a number of medical service providers, medical product providers, and possibly from news agencies or other resources which might provide information relating to health care issues. Based on an individual's medical history targeted information will be sent automatically to the individual. The information packages can also include suggested treatments or recommended courses of action which can be transmitted to the user if such treatments or courses of action correspond with the individual user's diagnosed condition.

As individuals add to, and/or modify, their medical record information in the system database, the individuals' personal medical records will be updated and subsequently the targeted information which is provided to the user will be modified so that it corresponds with the individual's updated medical records.

All the individuals who use the system of the invention will have their medical records stored on the system database. This data will be accessible to medical researchers and health care providers in scrubbed form. "Scrubbed" means that the medical records will be stripped of all references to specific individuals, but all other information relating to the individual medical records will be retained. Thus, the system will provide access to clinically derived statistical data regarding the occurrence of various medical conditions across various populations. Retrospective analysis of patient population information, or "outcomes" analysis, is a major tenant of managed care and key in many medical breakthroughs. Part of the problem with the data currently available, is that it is almost entirely derived from those already sick and in the health care system. To properly understand patient population characteristics, the health profile of all members of a group, not just those who are sick, must be available.

III. Summary of the Drawings

Fig. 1 is a block diagram showing an embodiment of the invention.
Fig. 2 is a flow chart showing steps involved in inputting individual used data.
Fig. 3 is a flow chart illustrating information flow in one embodiment of the invention.
Fig. 4 is a flow chart illustrating the interface between the user and the system database in one embodiment of the invention.
Fig. 5 is a flow chart illustrating a method of the invention.

Fig. 6 is a block diagram illustrating the configuration of one embodiment of the invention.

Fig. 7 is a flow chart illustrating the operation of one embodiment of the invention.

IV. Detailed Description

As shown in Fig. 1, the first step in using the system is for the individual user 2 to access 4 the system 6. Under most circumstance the individual will access the system via the Internet. Similarly, medical service and/or medical product providers 8 will also gain access to the system via the Internet. These providers can supply information packages, such as advertisements or articles to system via the Internet. These information packages are then considered for transmission to the individual users based on their unique medical history. Medical researchers 10 will also have access to certain aspects of the system's database via the Internet.

Fig. 2, also shows that the first step for an individual 2 to utilize the system of the invention is to access 12 the system. The initial interaction between the user and the system will be for the user to answer questions set forth in a questionnaire 14. The questionnaire is specifically tailored to prompt the user to provide necessary information regarding their medical history and medical condition. The next step is for the user to verify 16 the accuracy of the information.

Fig. 3, shows that information derived from questionnaires 20 is then aggregated into the data base 22 which then serves as data warehouse, condition specific on-line ad server 24, e-mail router 26 and personal medical record repository 28.

In one embodiment of the invention, each user who tries to access any page in the system via the Internet will be automatically re-directed to a logon page. At this time the individual user can either join the system data base, if they are a new individual user, or logon if they are an existing individual user. No one can get their individual records without entering their first and last name and their unique password. This three way encryption is the standard in many large client server implementation used today in business enterprise. These features provide for a highly secure system site allowing users to confidently house their most private and personal data on the system database.

Users can send via e-mail, fax or by mail their medical record information to his or her new provider and, in the process, control who sees or does not see it. In an emergency and with the patient's password, that patient's record is available for emergency access from anywhere in the world 24 hours a day. Emergency information is contained on a convenient wallet card provided to system users to be carried in case of emergency.

Users will spend large amounts of time providing information when their health care, or that of their family, is at stake. Therefore, users will often exert great care and attention to entering data into the system database, which makes the data collected rich and useful. The questionnaires will include questions prompting the user to indicate if they have one or more of numerous different medical conditions. The questionnaires of the system may include subsets of questions from types of medical questionnaires, which are widely used in the health care industry; some examples are Health Status 2.0, Personal Identifiers, Personal Characteristics, Health Risk Inventory, and Health Conditions.

Condition-specific drill down questionnaires (i.e. detailed questionnaires specifically focussing on details related to specific conditions for those individuals who are identified as having a specific condition) include information on conditions such as: Angina, Asthma, Carpal Tunnel Syndrome, Cataract, Chronic Sinusitis, COPD, Depression, Diabetes, Hip Fracture, Hip Replacement, Hypertension/Lipid Disorders, Low Back Pain, Osteoarthritis of the Knee, Panic, Prostatism, Rheumatoid Arthritis, Stroke, and Substance Use Disorder.

Questionnaires can be offered in numerous different languages and replicated on servers located around the world.

By entering information in response to the questionnaire the individual user provides the system with a profile of the individuals unique medical history. Once the individual's medical history has been input in response to the questionnaire, the information will be incorporated into the systems database. The medical history in the database will correspond to the specific individual and the e-mail address of the person who input the medical record information.

Once the individual user has input their medical history into the system in response to the questionnaire the system will be able to use data warehousing of the system to allow for: direct down loading of complete personal patient records to consumers and new potential medical service providers for use in evaluating health care options; providing buying guides containing results-oriented findings on specific providers and managed care organizations within specific metropolitan areas or geographic regions in the country; using the system's search engine to search specific areas of interest and doctors who are specialists in particular geographic area to find the clinician, either locally or across the country; and advertising by providers of health care services.

Another component of the system is that it will store a plurality of information packages containing extensive amounts of information regarding different types of medical services and products. This data is organized in such a way that it will correlate with the different health characteristics that the user will input into the system.

The system will periodically send health care information to the individual user. The specific information sent to an individual will be specifically tailored to their unique health care history profile. Specifically the database will identify the health care information stored in the database that correlates to users health care history. For example a user who has answered the questionnaire indicating that she has heart disease and asthma will be sent information which specifically relates to heart disease and asthma. While another user who has answered the questionnaire indicating that he wears glasses might receive information relating to contacts or glasses.

The system provides a valuable resource for both advertising and data mining. For advertisers, the system will provide a cost effective, highly targeted vehicle to reach individuals with specific needs. Advertisements will be provided only to users who identify themselves are targets for that product (e.g.: only users who identify themselves as having diabetes will receive product information on new diabetic related products). Data-mining of population statistics using the system's data warehousing capability will allow the system to provide the health care industry with clinically derived, patient centered information for retrospective "outcomes" analysis.

In recent years advertising has increased significantly on the Internet. One embodiment of the system will provide a means for precisely targeting specific ads to individual users of the system based on their specific medical history profiles as determined by the data input to in response to the questionnaire. The system will interact and react based on the individual user's needs and preferences. By incorporating a running knowledge of past interactions with a customer, the system optimizes the efficiency and power of each contact for both parties. Advertisements for products that address specific disease states and medical conditions are pushed only to users who have identified themselves as being potential customers. Heart disease medication information to those with heart disease, diabetes product information to diabetics, etc.

General site sponsor ads (such as for example products with broad markets such as aspirin ads) will be viewable to all, but every time a user signs on they will receive a unique advertisement/information package customized for them. Each ad is served based on the user's full profile that is filled out when they first come into the site. The company will target the ads carefully, based on the initial profile, and then re-target as users reveal preferences through their interactions with various categories and types of ads.

Such attention to which ads are right or wrong for the customer will improve their value and reduce the chance that a customer will ignore the information. The system will reliably deliver highly cost effective, precisely targeted advertising based on individual user's demographic information and report to advertisers what ads they're seeing.

A significant advantage of this approach includes the elimination of annoying users with irrelevant information or "spam". Indeed, an overweight middle aged man who has been informed by his physician that he needs to lower his cholesterol might welcome receiving information on Pravachol, a cholesterol lowering drug from Bristol-Myers Squib has been proven to help prevent first heart attacks.

In one embodiment of the invention, even when an individual user is not logged onto the system, the system will target specific users with important news developments or other information based on their individual profiles with messages sent to individual user's e-mail in-box. Targeted advertising for high value added health care

goods and services or news items are delivered and targeted with greater precision than is currently possible.

As discussed above data to be collected from individual users will include traditional clinical measures. In addition to data related to the individual users functional status and quality of life will also be collected. Patient population statistics collected by the system are scrubbed of any references to specific individuals in a high performance repository that will provide flexible access to standardized formats of data for retrospective outcomes and resource utilization studies.

Outcomes data has a tremendous impact on the business models of payers and providers of heath care services, providing the key to understanding the efficacy of new drug compounds, treatment modalities and understanding the real cost of delivering acceptable quality levels of health care. "Outcomes" are organized along seven dimensions:

1. Clinical - the traditional measures, e.g., blood pressure and tumor size.
2. Death - mortality from all causes.
3. Disease - chronic diseases and conditions likely to affect function.
4. Functional status - metrics of what patients can do, such as climbing stairs.
5. Well-being - patients' pain, emotional and mental states.
6. Satisfaction - patients' evaluation of various aspects of their care.
7. Cost - the actual costs of delivering satisfactory care rather than just charges.

Major drug companies rely heavily on data from patient population studies to gain insight as to the best way to proceed in the development of new drugs, and the genetic engineering revolution has just increased the need for this information. Instead of spanning the globe searching the world's rain forests for exotic new bacterias, increasingly researchers look to data banks for enlightenment and already a few resources exist. Merck has contracted with scientists at Washington University in St. Louis, Missouri, to construct a data bank of genes and proteins useful in drug research. The results, to be known as the Merck Gene Index, will be available to researchers via the Internet.

The greatest problem with the medical data that currently exists is that it is often the wrong type. It is either fee for service billing data, coded with CPT procedure codes and ICD 9 diagnoses codes, or clinical information from patients who are already

sick. To truly understand the cost of delivering care to heterogeneous patient populations, providers of health care under a managed care business model must understand important characteristics of the patient populations they are responsible for before they get sick.

When a client drug company wants to learn more about patients with a particular condition or malady. the system can offer a way to immediately study a large number of patients that fit that profile and possibly contact them by e-mail regarding the feasibility of joining clinical studies and trials.

In one embodiment of the invention the system includes a based Web architecture that utilizes a replicated distributed SQL server backbone, Microsoft Transaction Server (MTS), Internet Information Server (ITS), Active Server Pages (ASP), stored procedures, ActiveX Server Components, graphics and HTML. It utilizes a SQL Server 6.5 backbone, IIS 4.0, MTS, and ASP pages to serve dynamic content and user criteria specific advertising banners and search criteria to any standard browser that supports HTML 2.0. This lowest common denominator of HTML 2.0 is used to ensure that the largest population of on-line members could be reached with advertising materials through a set top box (a television configured to access the Internet--Web TV is an example), AOL, Windows CE, etc.

The system database relies on scaleable Web servers able to serve up custom, user defined web pages on-the-fly. The technology model of the system includes open standards of the Internet and is client platform independent. The system provides security, maintainability, and extensibility for the users. It will handle user volumes in excess of 10,000 users per hour; 24 hours a day; seven days a week, 365 days per year.

In one embodiment of the invention the system is scaleable so that can instantly handle up to 10,000 simultaneous users. This means one user can request the same data at the same time as another a second user. Given this high availability goal the system is based on a services model architecture with a three tiered roll out delivered through a scaleable solution that is comprised of the following tiers as shown in Fig. 4. First, the Presentation Layer 48 provides interface support and a single common point of end user interaction. This layer allows the standard web browser user to indirectly invoke functional layer objects, that reside in the MTS

object pool, from Server Side VB Script contained in ASP Pages that are accessed by the user and run only on our centralized server through IIS. Second, the Functional Layer 50 handles all requests made by users from the presentation layer, translates those requests securely to the database layer while invoking objects pooled within MTS, and then accepts return values from those objects to return to the presentation layer. Third, the Data Layer 52 handles all communication with the database 54 and is completely insulated from the end user via the MTS functional layer objects as invoked by the presentation layer. These components select, insert, update, and delete data only when authorized to do so by the functional layer objects.

As discussed above a series of data collection forms, or questionnaires, will be used for the initial patient record interviews. The server will manage all functions including user authorization, data collection, transaction logging, and process configuration. A series of data collection forms are used for the initial patient record interviews and input. Each user who tries to access any page in the system site will be automatically re-directed to the logon page. At this time they can either join, if they are a new member, or logon if they are an existing member. But they cannot get into their record or anyone else's for that matter without their first and last name and their unique password.

The presentation layer presents the user with text, graphics, and forms to view and read, and complete. It also presents advertising banners that are targeted at the particular medical conditions that this user has indicated in their medical record.. Through those same ad banners a user can link out to the advertiser's site to gather more information on their products or company. Users can request a web page from the system site with any common browser over any on-line connection. That request is invoked through the system's primary DNS system, IIS 4.0 and the Active Server Pages object model (ASP). The ASP request in turn contains server side script that is never seen nor sent to the end user, but remains on the server where it belongs for security and support reasons. That script then invokes objects within MTS 2.0 that perform functions to select, insert, update, and delete data against the SQL Server 6.5 backbone at the rate of more than 10,000 users per hour. The user gets sent back a standard HTML page that has been dynamically generated and tailored to their particular profile.

In one embodiment of the invention, search engine technology is incorporated to aid users in researching their particular medical conditions. For example the system can utilize the latest search engine technology to assist users in locating useful information on subjects that specifically relate to their medical condition. For example, if a user indicated that he was diabetic, with the touch of a "search" button located the server page, the search engine provides them with the very latest information relating to his condition as defined by his profile. Searches can be specified by user profile, general interest or by "canned" topics such as diabetes or heart disease, where searches are configured to correspond to the individual users unique medical history.

Fig. 5 shows a flow chart of steps of one embodiment of the invention. The user is provided access to the computer system 56 via the Internet. Once the user has accessed the system the user is prompted to input user specific data 58. The user specific data is then stored 60 on a data storage device. This storage device also contains information packages. The user specific data is then analyzed to determine 62 if any of the user specific data corresponds to the information packages. Once corresponding information packages are identified they are transmitted to the user 64. The stored input user specific data can also be used to define parameters for an Internet search based on stored data 74. The search parameters are used to focus the Internet search 76. Search queries can also be input to do searches and analysis of the user specific data 66. Based on the search queries analysis and searches of the user data can be conducted 68. Prior to outputting the results of the search and analysis of the user specific data the data is scrubbed of references to specific individuals, so that the individual users of the system will remain anonymous to those who are using the system for statistical research purposes.

Fig. 6 shows that a plurality of individual user computers 78 are connected to the system processor 82. One or more research user computers 80 can also be connected to the processor 82. The processor 80 is linked to a storage device 90, which is capable of storing both user specific characteristics 86 and a plurality of provider information packages 88. The processor 80 can also be linked to search engine 84

Fig. 7 is another flowchart showing aspects of an embodiment of the invention, which include providing access to a home page 92. Once the user has accessed the home

page they will be prompted to input their medical record information 94. The input medical record information is stored in a first memory area 96. Provider information packages are stored in a second memory area 98. The relationship between the medical record information and the provider information is analyzed 100. Where the analysis of the medical record information and the provider information packages shows that there is correspondence between the information, the corresponding provider information package will be transmitted to the individual user who input the corresponding medical record information 102. As previously discussed search inquires can be received to initiate searches and analysis of the medical record information 108. The medical record information stored in the first area can also be used to narrow the subject matter of an Internet search 106.

The search engine can be accessed by the system at a script level. The search engine should have fast crawling features to ensure freshness for both custom and canned searches requested by the users of the system. Ideally the search engine will utilize parallel processing and provide a level of fault tolerance necessary for performing fast and accurate searches. An example of such a search engine is the HOT BOT™ search engine provided by Inktomi. The script level access to the search engine allows a pre-configuration of search strings which the user can utilize to search the Internet.

Although the invention has been described in connection with a specific preferred embodiment, it should be understood that the invention as claimed should not be unduly limited to any specific embodiment. It is intended that the following claims define the scope of the present invention and that systems and methods within the scope of these claims and their equivalents be covered thereby.

Claims

What is claimed is:

1. A method for using a computer system to organize user specific health care data and for utilization of such user specific health care data, comprising the steps of:
providing access to the computer system;
displaying a questionnaire to prompt an individual user who has accessed the computer system to input user specific health care data into the computer system;
storing the user specific health care data;
inputting a plurality of information packages;
storing the plurality of information packages;
determining if any of the plurality of information packages correspond with the user specific health care data; and
transmitting via a digital network an information package from the plurality of information packages to the user where the information package corresponds with the user specific health care data.
2. The method of claim 1 further comprising the steps of:
displaying a homepage to the user;
presenting the user with a questionnaire to prompt the user to indicate if the user has one or more of at least five different medical conditions; and
storing at least five information packages relating to health care issues.
3. The method of claim 2, wherein the transmitting of the information package is done by e-mail.
4. The method of claim 2, wherein the information package is transmitted to the user in the form of a banner display.
5. The method of claim 2, further comprising the steps of:
defining the parameters for an Internet search based on the user specific health care data;
using the computer system to conduct an Internet search; and
outputting a result of the Internet search.
6. The method of claim 2, further comprising the steps of:
inputting search queries;
searching the user specific health care data in response to input search queries; and

outputting the results of the searching of the user specific health care data.

7. The method of claim 6, further comprising the step of scrubbing all user specific health care data of any references to a specific user prior to outputting the results of the searching.

8. The method of claim 2, further comprising the steps of:

storing a plurality of suggested treatments;

storing a plurality of recommended courses of action;

analyzing the user specific health care data to determine if any of the suggested treatments or recommended courses of action correspond to the user specific health care data; and

transmitting suggested treatments and recommended courses of actions to the user where such suggested treatments or recommended courses of action correspond to the users specific health care data.

9. A system for storing and analyzing information comprising:

a storage device;

a processor connected to the storage device;

the processor operative to transmit a questionnaire to an individual user via a digital network, whereby the questionnaire prompts the individual user to transmit user specific medical data to the processor via the digital network;

the processor, operative to receive the user specific medical data, and to identify an e-mail address which belongs to the user who input the user medical data;

the storage device storing user specific medical data, and the e-mail address of the user who input the user specific medical data;

the storage device storing a plurality of information packages;

the processor operative to analyze a relationship between the user specific medical data and the plurality of information packages;

the processor operative to select an information package from the plurality of information packages based on the analysis of the relationship between the user specific medical data and the plurality of information packages; and

the processor operative to transmit the selected information package to the e-mail address of the user who input the user specific medical data analyzed in relationship with the plurality of information packages.

10. The system of claim 9 further comprising a plurality of individual user computers located at geographically remote locations relative to the processor which are linked to the first processor, wherein users can logonto the system through one of the plurality of individual user computers, and wherein the processor is operative to allow users to access the user specific medical data which the user transmitted to the processor.

11. The system of claim 10, further comprising a research computer linked to the processor:

wherein the processor is operative to receive a query from the research computer and analyze the user specific medical data based on the query received from the research computer;

wherein the processor is operative to output the analysis based on the query received from the research computer; and

wherein the processor is operative to scrub the user specific medical data prior to outputting the analysis based on the query received from the research computer.

12. The system of claim 9 further comprising:

an Internet search engine linked to the processor, wherein the processor is operative to input a search query to the search engine based on the user specific medical data.

13. A system for tracking medical record information, including a computer system accessible for on-line interactive communication with users, said computer system comprising:

a plurality of individual computers at locations geographically remote from a first memory area and a second memory area, but linked to the first and second memory areas via the Internet;

the first memory area storing medical record information;

the second memory area storing a plurality of information packages; and

a means for determining relationships between medical record information stored in the first area and the plurality of information packages;

wherein the computer system is programmed to perform the steps comprising:

providing a user on-line access to a homepage where an individual user is prompted to input medical record information;

storing medical record information input by the user in the first memory area;

storing the plurality of information packages in the second memory area;

analyzing the relationship between the medical record information input by the user and the plurality of information to determine if any of the plurality of information packages correspond to the medical record information input by the user; and

transmitting information packages from the second area to users who have medical record information stored in the first memory area where the analyzing determines that the information packages correspond to the user medical record information.

14. The system of claim 13, wherein the computer system is programmed to further perform the steps comprising:

searching the Internet for health care information;

narrowing the subject matter of the search based on the medical information stored in the first area; and

outputting a result of the Internet search.

15. The system of claim 14, wherein the computer system is programmed to further perform the steps comprising:

receiving queries to search the medical record information stored in the first area;

analyzing the medical record information based on the received search queries;

and

outputting the results of the analyzing.

16. A method for using a plurality of remotely located computers linked together by a digital network to organize individual user medical data and for utilization of such user medical data, comprising the steps of:

providing a plurality of users located at remote locations access to a system for storing and organizing medical data by the digital network;

requiring users to input their first and last names and a unique password to gain access to the system;

displaying a questionnaire to users who access the computer system, where the questionnaire prompts the user to input the users medical data;

storing the users medical data on a storage device;

storing a plurality of health care information packages on the storage device;

determining if any of the plurality of health care information packages correspond with the user medical data; and

transmitting by the digital network an information package from the plurality of information packages to the user where the information package corresponds with the user medical data.

17. The method of claim 16 further comprising the steps of:

displaying a homepage to the user;

presenting the user with a questionnaire to prompt the user to indicate if the user has one or more of at least five different medical conditions;

storing at least five information packages relating to health care issues; and

determining if any of the information packages correspond user medical data input by the user in response to the questionnaire.

18. The method of claim 17, wherein the transmitting of the information package is done by e-mail.

19. The method of claim 17, wherein the information package is transmitted to the user in the form of a banner display.

20. The method of claim 17, further comprising the steps of:

defining the parameters for an Internet search based on the user medical data;

conducting an Internet search;

outputting a result of the Internet search.

21. The method of claim 17, further comprising the steps of:

inputting search queries;

searching the user medical data in response to input search queries; and

outputting a result of the searching of the user medical data.

22. The method of claim 21, further comprising the step of scrubbing all user medical data of any references to specific users prior to outputting the results of the searching.

23. The method of claim 17, further comprising the steps of:

storing a plurality of suggested treatments;

storing a plurality of recommended courses of action;

analyzing the user medical data to determine if any of the suggested treatments or recommended courses of action correspond to the user medical data; and

transmitting suggested treatments and recommended courses of actions to the user where such suggested treatments or recommended courses of action correspond to the user medical data.

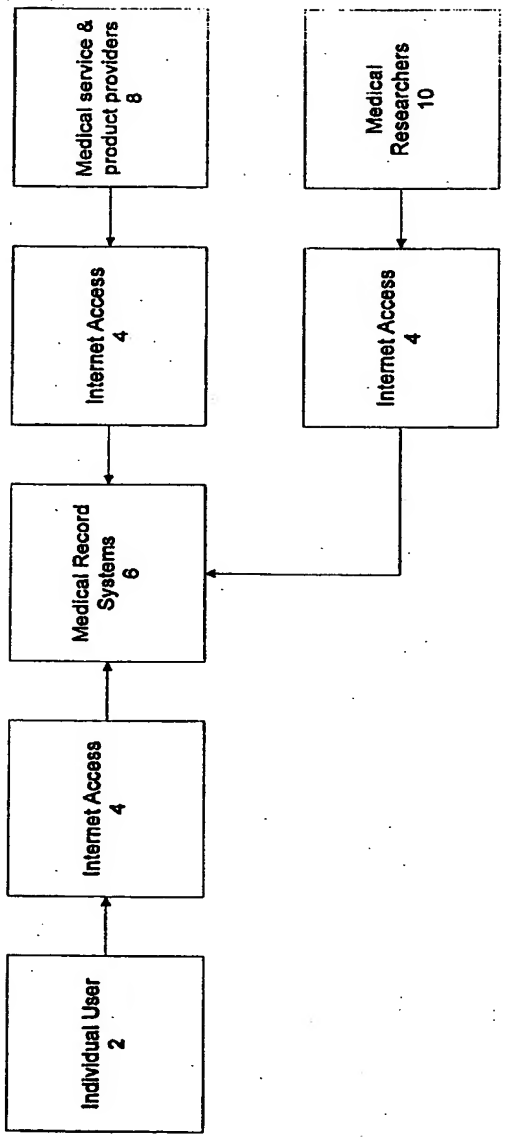
Medical service & product providers 8
Medical Researchers 10
Internet Access 4
Internet Access 4
Medical Record Systems 6
Internet Access 4
Individual User 2

FIG. 1

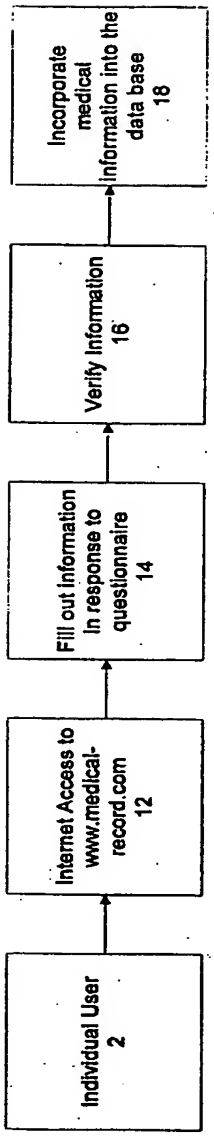
Individual User 2
Internet Access to www.medical-record.com 12
Fill out information in response to questionnaire 14
Verify information 16
Incorporate medical information into the data base 18

FIG. 2

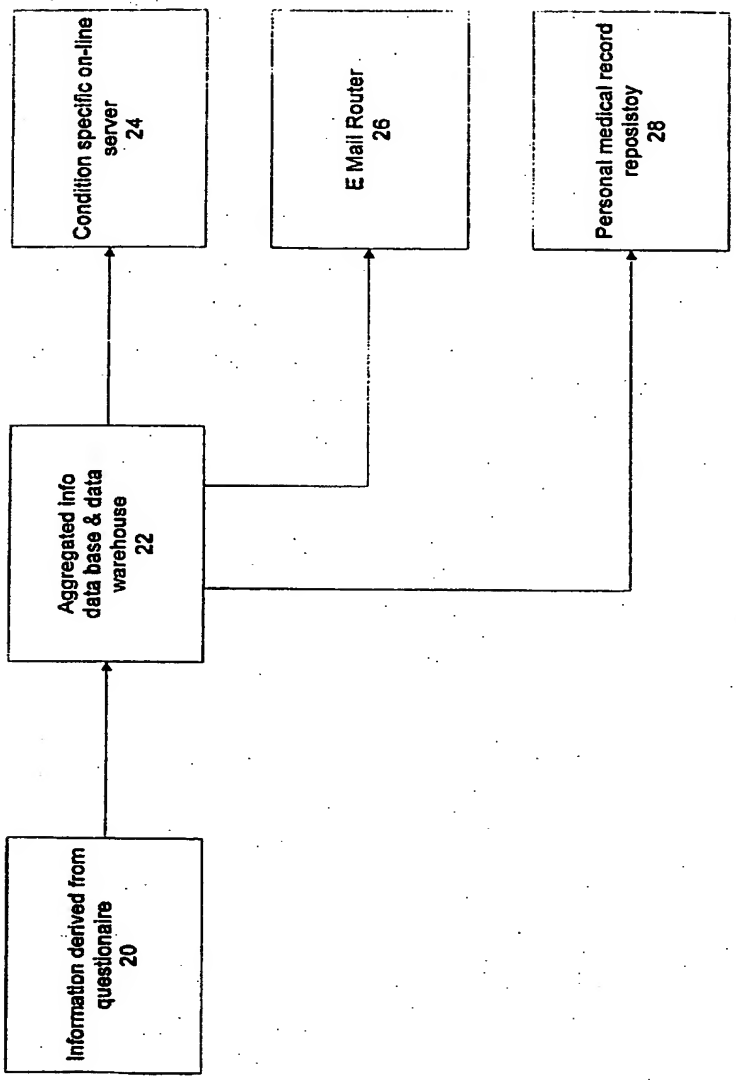
Condition specific on-line server 24
E Mail Router 26
Personal medical record reposistoy 28
Aggregated info data base & data warehouse 22
Information derived from questionaire 20

FIG. 3

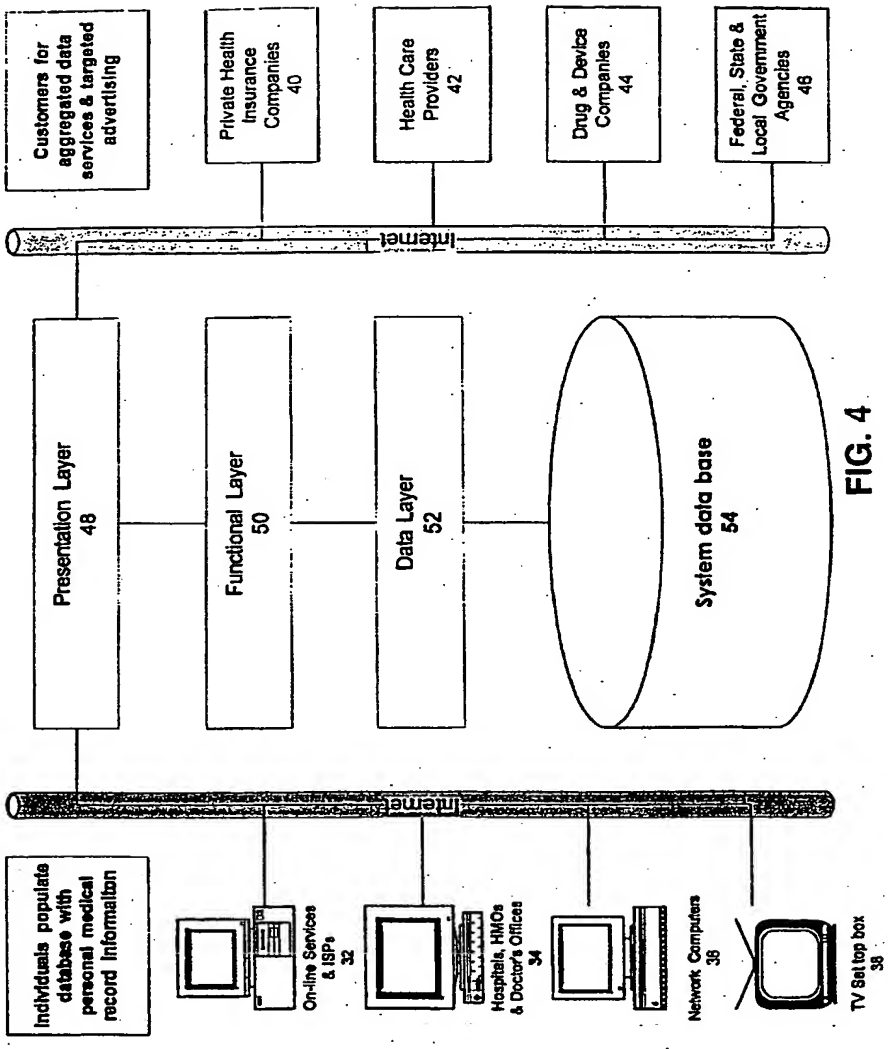
Customers for aggregated data services & targeted advertising
Private Health Insurance Companies 40
Health Care Providers 42
Drug & Device Companies 44
Federal, State & Local Government Agencies 46
Internet
Presentation Layer 48
Functional Layer 50
Data Layer 52
System data base 54
Internet
Individuals populate database with personal medical record information
On-line Services & ISPs 32
Hospitals, HMOs & Doctor's Offices 34
Network Computers 36
TV Set top box 38

FIG. 4

WO 00/29983

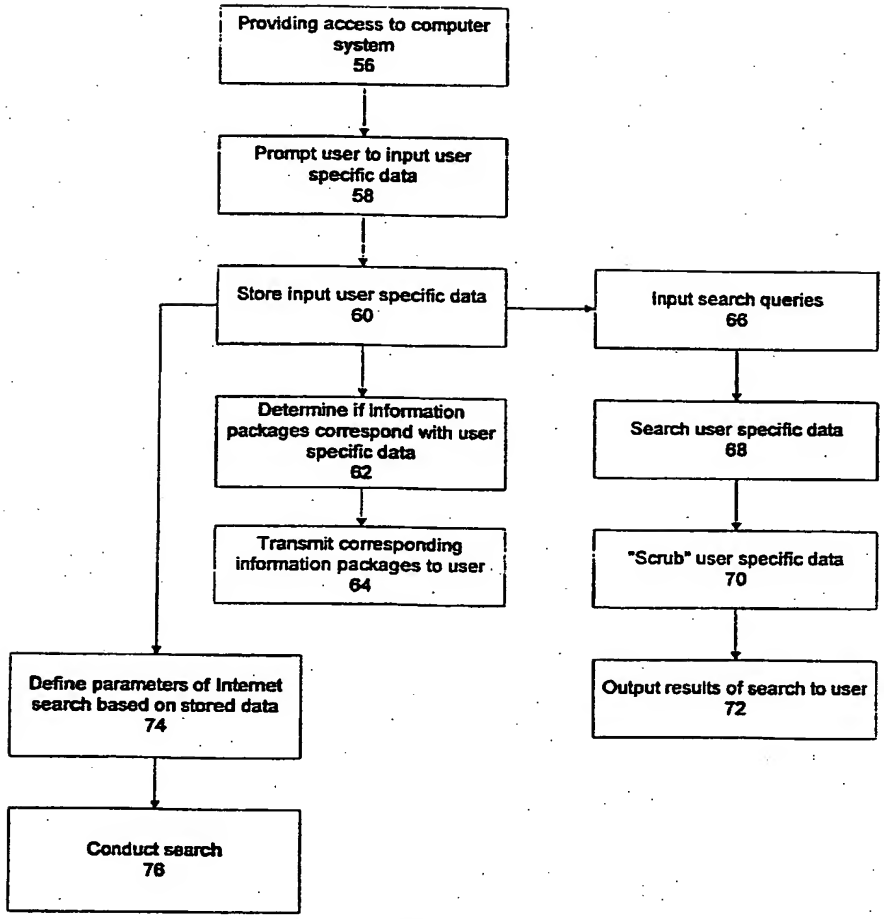

FIG. 5

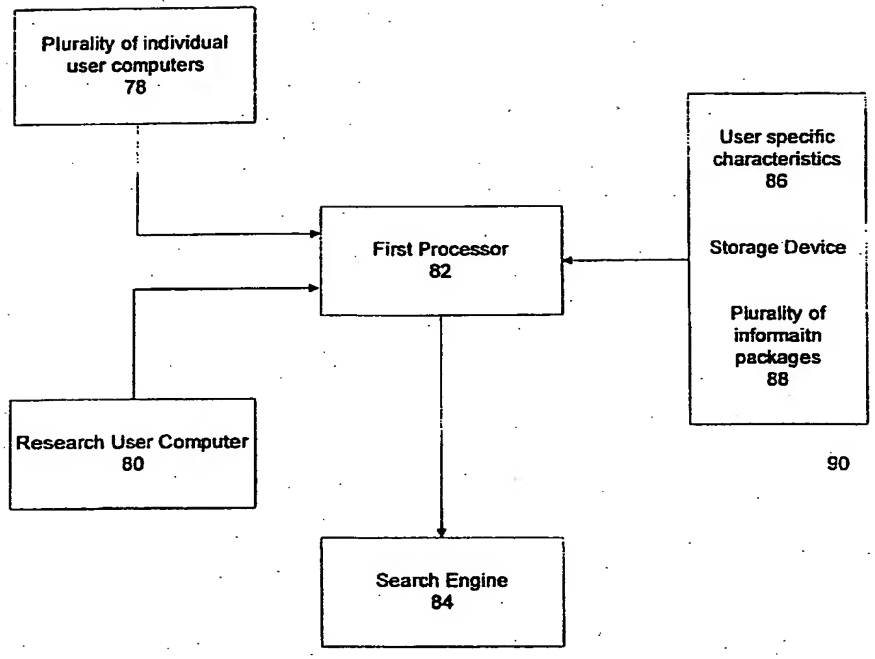
Plurality of individual user computers 78
User specific characteristics 86
Storage Device
Plurality of informaitn packages 88
First Processor 82
Research User Computer 80
90
Search Engine 84

FIG. 6

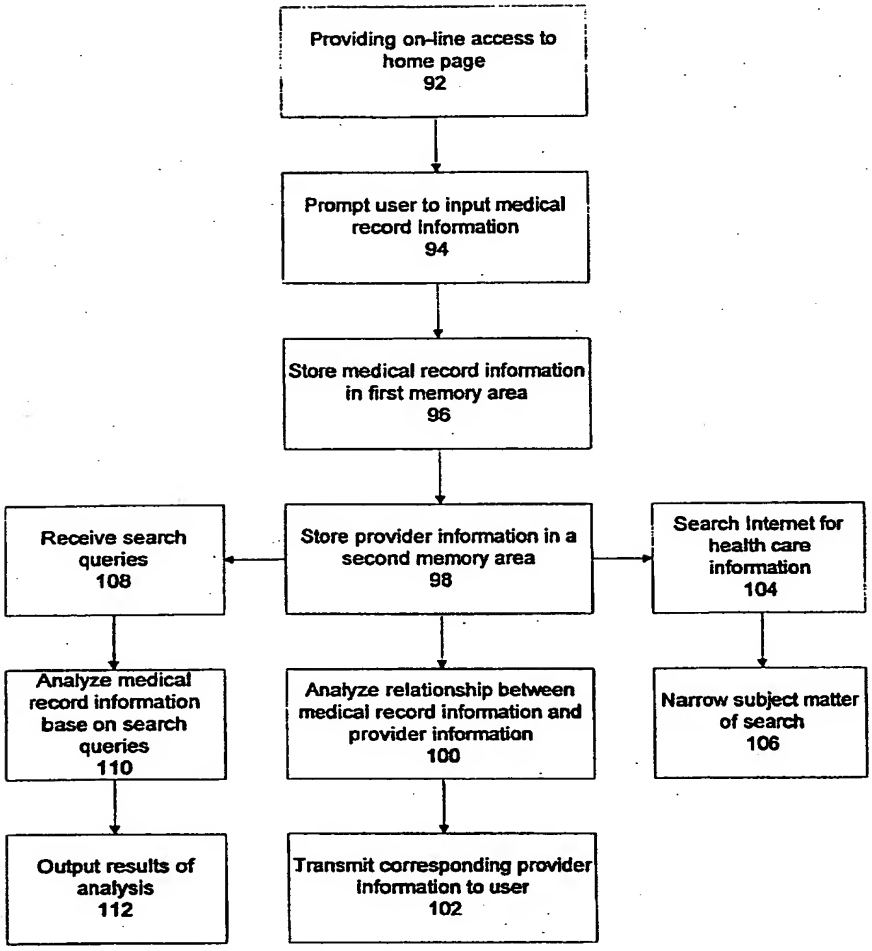
Providing on-line access to home page
92
Prompt user to input medical record information
94
Store medical record information in first memory area
96
Receive search queries
108
Store provider information in a second memory area
98
Search Internet for health care information
104
Analyze medical record information base on search queries
110
Analyze relationship between medical record information and provider information
100
Narrow subject matter of search
106
Output results of analysis
112
Transmit corresponding provider information to user
102

FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/26141

A. CLASSIFICATION OF SUBJECT MATTER
IPC(6) :G06F 17/30; G06F 159:00
US CL : 705/3, 10, 13
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/3, 10, 13

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	UNKNOWN. Internet Access: Free Web-Based Service Lets People Build and Maintain Their Personal Medical Records. Edge: Work-Group Computing Report, 8 June 1998, Vol. 8, No. 19, Page 3.	1-23
A	KAY, B. A. et al. Innovative Information-Sharing Strategies, Emerging Infectious Diseases, July/Sept. 1998, Vol. 4, No. 3, Pages 465-466.	1-23
A	COOK, B. Internet Train is Rolling. American Medical News. 4 October 1999.	1-23
A	BORZO, G. Telemedicine: New Tools, Not New Medicine. American Medical News. 1 November 1996, Vol. 39, No. 42, Pages 55-57.	1-23

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 DECEMBER 1999	10 FEB 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer E. TODD VOELTZ Telephone No. (703) 305-9714

Form PCT/ISA/210 (second sheet)(July 1992)*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/26141

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GUY, S. Conference Highlights Growing Reach of the Internet. American Medical News, 16 November 1998, Page 27.	1-23
A	MEDICALRECORD.COM: Company Info. Printed on 29 December 1999.	1-23
A	UNKNOWN. MedicalRecord.Com Introduces Global Records Access and Management Tool System. Press Release. 24 August 1999.	1-23
A	NEWSOM, M. Storing Medical Records A Healthy Web Use. Investors Business Daily. 3 November 1998.	1-23
A, P	US 4,948,061 A (MERRIMAN et al.) 07 September 1999, see abstract.	1-23
A, P	US 5,848,397 A (MARSH et al.) 08 December 1998, see abstract.	1-23
A, P	US 5,933,811 A (ANGLES et al.) 03 August 1999, see abstract.	1-23
A, P	US 5,974,398 A (HANSON et al) 26 October 1999, see abstract.	1-23
A, E	US 6,009,410 A (LEMOLE et al) 28 December 1999, see abstract.	1-23

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/26141

B. FIELDS SEARCHED
Electronic data bases consulted (Name of data base and where practicable terms used):

EAST, DIALOG, MEDLINE
search terms: record management, patient, user, health, medical, database, record, internet, world wide web, on line, advertising, targeted, customized, profile